



DONALDSON COAL PTY LIMITED

ABEL MINE

**Hunter Water Corporation
Water Pipeline Subsidence Management Plan**

**SMP Area 1
East Mains Headings**



October 2012

Document Control

Description

Document No.	Abel SMP Area 1
Title	Hunter Water Corporation Water Pipeline Subsidence Management Plan – SMP Area 1 – East Mains Heading
General Description	To ensure the serviceability of the Hunter Water Corporation water pipeline that may be impacted by extraction of the East Mains Headings in the Abel Mine SMP Area 1
Key Support Documents	Abel Mine Area 1 Subsidence Management Plan

Approvals

ORIGINATOR	Kevin Price	Brunskill Pty Limited		
REVIEWED	Matthew Wright	Position Registered Mine Surveyor	Signed 	Date 15-10-12
APPROVED	Tony Sutherland	Position Technical Services Manager – Donaldson Underground Operations	Signed 	Date 15-10-12
APPROVED	Nathan Hays	Position Network Operations Control Engineer Hunter Water Corporation	Signed	Date

Revisions

Version #	Date	Description	By	Checked	Approved	
					Name	Signed
1	October 2012					

The nominated Coordinator for this document is	Technical Services Manager
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1 KEY CONTACTS

Organisation	Contact Person	Phone Number
Abel Mine	Tony Sutherland – Technical Services Manager	02 4015 1105 0407 239 820
Abel Mine	Matthew Wright – Registered Mining Surveyor	0488 206 172
Hunter Water Corporation	Nathan Hays – Network Operations Control Engineer	02 4979 9508
Hunter Water Corporation Emergency	Emergency Line	1300 657 000
Mine Subsidence Board	Paul Gray – Area Supervisor	(02) 4908 4356

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2 INTRODUCTION

The Management Plan has been developed to manage the risks associated with surface subsidence impacts caused by the extraction of the East Mains Headings within SMP Area 1 at Abel Mine.

A Hunter Water Corporation water service is potentially affected. The water service is a 200mm UPVC Class 20 rubber ring jointed main, constructed in 1992. The water service is a back up supply to the Minmi area. It also supplies water to the Catholic Diocese water supply system. A flow meter is installed at the John Renshaw Drive end of the water line.

The pipeline can be shut down for extended periods for repairs (subject to change due to issues within the system e.g. a shutdown of the alternative feed). Regular surveillance of the pipeline is not currently undertaken in the area. Acoustic leak detection surveys can be arranged to check on the integrity of the line.

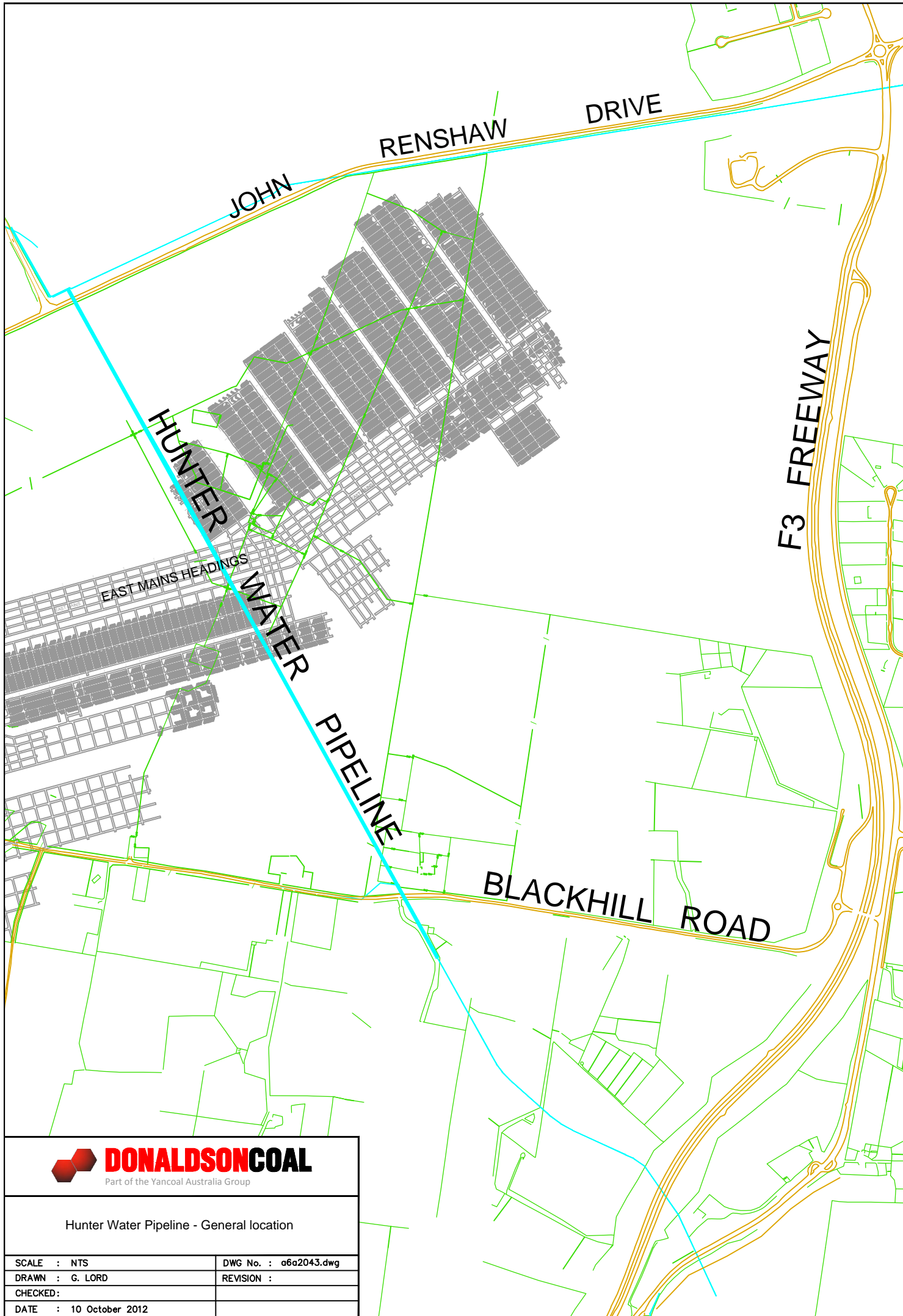
The line crosses the East Mains Headings as shown in Figure 1.

3 REFERENCE TO PLANS AND PROCEDURES

This plan forms part of the Abel SMP Area 1 Management Plan and should not be read in isolation. The following table shows the document hierarchy.

Management Plan	
Abel SMP Area 1 Subsidence Management Plan	
Containing:	
<ul style="list-style-type: none">• Background information• Identified risks• Subsidence Monitoring and Plan• Public Safety Management Plan• Individual Property, feature and infrastructure TARP's	
Hunter Water Corporation Water Pipeline Subsidence Management Plan	

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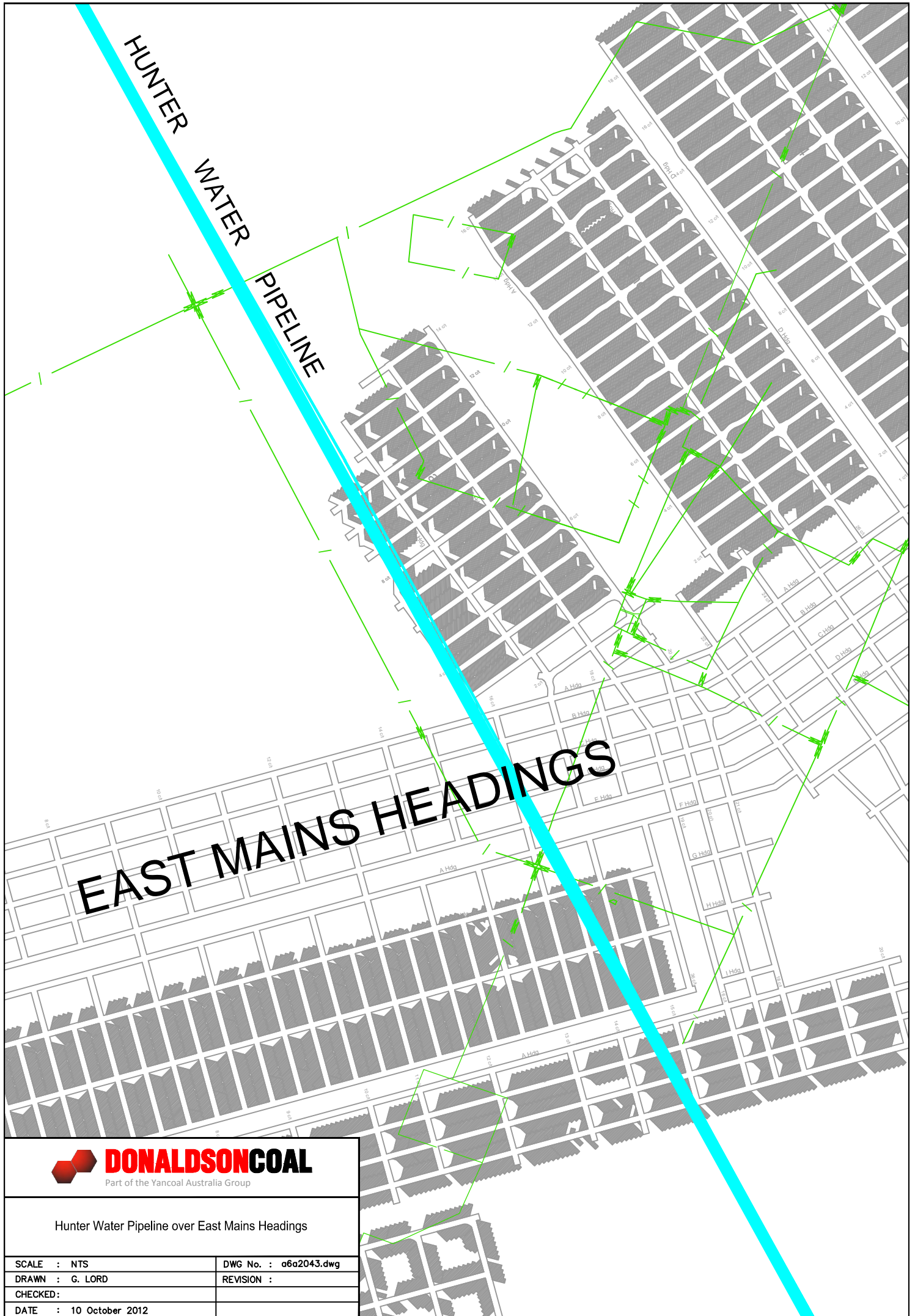


DONALDSON COAL

Part of the Yancoal Australia Group

Hunter Water Pipeline - General location

SCALE : NTS	DWG No. : a6a2043.dwg
DRAWN : G. LORD	REVISION :
CHECKED:	
DATE : 10 October 2012	



Part of the Yancoal Australia Group

Hunter Water Pipeline over East Mains Headings

SCALE : NTS	DWG No. : a6a2043.dwg
DRAWN : G. LORD	REVISION :
CHECKED:	
DATE : 10 October 2012	

4 MANAGEMENT CONTROLS

The subsidence from the extraction of the East Mains Headings within Abel SMP Area 1 will impact on the surface including potential impacts on the water pipeline.

Predictions of worst case final subsidence and impact for the water service were conducted by Ditton Geotechnical Services and provided to Hunter Water Corporation for review. The Ditton predictions for the East Mains Headings area are provided below in **Table 1**.

Table 1- Worst Case Subsidence Predictions for the Hunter Water Corporation Water Pipeline from East Mains Headings

Panel	Final Sub Smax (m)	Final Tilt Tmax (mm/m)	Final Horiz Displacement (mm)	Final Horiz Displacement (mm)	Final Ground Strain (mm/m)	Final Ground Strain (mm/m)
			In - Line	Lateral	In - Line	Lateral
East Mains Headings	1.50	28	201	86	6 / -13	0.7 / -0.6

Following the Hunter Water Corporation review and consultation agreed management actions were established. These actions included the possibility of installing a flow meter on the BlackHill Road end of the water line and control valves at appropriate locations. This is designed to allow an appropriate response and repair by Hunter Water in the event of a service failure.

4.1 Subsidence Monitoring

Monitoring of subsidence will be conducted as per the Abel Subsidence Monitoring programme that will be agreed to by the Principal Subsidence Engineer.

4.2 Subsidence Inspections

Water Service Corridor - Subsidence inspections will be carried out each week day (Monday – Friday) while the pipeline is in the active subsidence zone. These inspections will be carried out by mine staff. The inspections will be carried out to assess impact on the surface. Observed impacts on the surface may indicate an impact on the water service. The inspection checklist will be used for this task. (see Appendix A)

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4.3 Scope of Inspections

Regular inspections will cover a zone defined as being 200 metres behind and 100 metres in front of the current face position. The inspections will cover the full subsidence bowl out to the 26.5° angle of draw.

Inspections will be carried out by trained persons and will follow the inspection checklist. Inspections will identify the following subsidence impacts:

- Surface cracking - edges of extraction void and start and travelling abutments particularly in rock outcrop areas.
- Surface humps (compression) - near centre of extracted panels and travelling abutment
- Step change in land surface - associated with cracking
- Visible evidence of water leak.

4.4 Reporting

- A monthly report detailing the outcome of inspections and subsidence monitoring data will be supplied to Hunter water Corporation whilst mining is in the inspection zone.

Other communications will be as detailed in the Public Safety Management Plan.

4.5 Water Service Impact Issues Identified During Inspections

If any water service issue is identified during inspections the person conducting the inspection shall:

- Immediately notify Hunter Water Corporation of the findings.
- Immediately notify the Technical Services Manager of the findings.

4.6 Remediation of Water Service Impact Issues

If any water service issue is identified during inspections or public safety issue is identified during assessment of monitoring or inspection results that person shall:

- Immediately contact Hunter Water Corporation and advise the identified impact
- Arrange for Hunter Water Corporation to effect immediate repairs if necessary
- Liaise with Mine Management and Mine Subsidence Board to arrange long term repairs.

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5 RESPONSIBILITIES

5.1 *Manager of Mining Engineering*

- Promptly notify the District Inspector of Coal Mines of any identified public safety issue.

5.2 *Abel Technical Services Manager*

- Authorise the Plan and any amendments thereto.
- Ensure that the requisite personnel and equipment are provided to enable this Plan to be implemented effectively.
- Inform the Manager of Mining Engineering of impacts requiring notification to Industry & Investment (Mine Safety).
- Liase with officers of Hunter Water Corporation and remediation consultants and contractors as required.

5.3 *Abel Registered Mining Surveyor*

- Ensure that subsidence inspections are conducted to the required schedule and that the persons conducting the inspection are trained in the requirements of this plan and understand their obligations.
- Review and assess subsidence monitoring results and inspection checklists
- Promptly notify the Technical Services Manager of any identified public safety issue.
- Ensure all reporting is carried out.

5.4 *Technical Services Survey Staff conducting subsidence inspections*

- Conduct the subsidence inspection within the applicable subsidence zone to the standard required and using the subsidence inspection checklist
- Take actions to remediate any public safety issue identified during inspections.
- Where actions are beyond their capabilities immediately attempt to notify the landowner or infrastructure owner and Technical Services Manager

5.5 *Hunter Water Corporation*

- Arrange repairs as necessary.

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6 TRAINING

All personnel who conduct inspections will be trained in the requirements of the Abel SMP Area 1 Subsidence Management Plan and the Hunter Water Corporation Water Pipeline Management Plan.

Training will be conducted on the identification of the various subsidence impacts detailed in Public Safety Management Plan and will include any safety aspects of those inspections.

7 AUDIT AND REVIEW

7.1 *Audit*

The requirements of the Hunter Water Corporation Pipeline Management Plan are to be audited following the completion of extraction of the East Mains Headings.

7.2 *Review*

A review of this plan will be undertaken:

- If the mine design criteria are changed.
- Following each audit.

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APPENDIX A - INSPECTION CHECKLIST

SUBSIDENCE INSPECTION CHECKLIST – East Mains Headings		
Date		
Face Position (Pillar No / Panel row)		
Inspection Zone Start (Face - 200m)		
Inspection Zone End (Face +100m)		
Area Inspected by (Print Name and sign)		
INSPECTION ITEM	CHECKED	COMMENTS
Surface cracking (HWC,EA,CD)		
Surface humps (compression) (HWC,EA)		
Water reticulation system and water troughs (CD)		
Step change in road pavement (HWC,EA,CD)		
Fences, gates (CD)		
Visible water leaks or seepage (HWC)		
Damage to Powerpoles, Crossarms, Insulators and Conductors (EA) e.g. leaning poles, increased sag in conductors, reduced ground clearance		
Erosion (CD)		
Structures (houses, outbuildings) (CD)		
Other		

HWC = Hunter Water Corporation EA = Energy Australia CD = Catholic Diocese

**** Any Impacts observed to be photographed, located and marked on a plan.**

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SUBSIDENCE INSPECTION CHECKLIST – WATER SERVICE

Where to Inspect

200 metres behind and 100 metres in front of the current face position.

Cover the full subsidence bowl out to the 26.5° angle of draw.

What to look for

- Surface cracking - edges of extraction void and start and travelling abutments particularly in rock outcrop areas.
- Surface humps (compression) - near centre of extracted panels and travelling abutment
- Step change in land surface - associated with cracking
- Visible water leak or seepage,
- Any effect that may cause a safety risk. – If unsure report immediately.

Actions if there is damage to any road or visible water leaks

- Immediately notify the:
 - Manager of Mining Engineering
 - Technical Services Manager
 - Registered Mining Surveyor
 - Hunter Water Corporation

If repairs or remediation work is required these will be undertaken by Hunter Water Corporation.

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